8/28/06-01919

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

August 28, 2006

Ms. Linda L. Cole, P.E.
Remedial Project Manager
NAVFAC MIDLANT, Code EV3
9742 Maryland Avenue
Building N-26, Room 3208
Norfolk, VA 23511-3095

Re: Revised Draft Remedial Investigation Site 11 - Bone Yard (February 2006)
Naval Weapons Station Yorktown, Yorktown, Virginia

Dear Ms. Cole:

Thank you for giving EPA the opportunity to review the referenced document. The following are EPA's ecological comments on this document:

General Comments

1. The baseline ecological risk assessment needs to consider maximum concentrations when assessing the risk to ecological receptors that are immobile or have limited mobility.

2. Contrary to the application in the risk assessment, the use of the HQ does not allow the user to definitively differentiate between low, moderate, or high levels of potential risk. If the HQ value is less than 1, the potential for risk is unlikely; if the HQ value is equal to or greater than 1, the potential for risk exists. For example, Section 8.4.1 on page 8-43 states that HQs calculated for location 11SS16-00 indicated minimal risk (HQ = 1.30 for 2,4-dimethylphenol and HQ = 1.60 for 4-methylphenol. Low HQs do not necessarily equate to low risk. References to the significance of risk based on the magnitude of the HQ should be removed from the risk assessment.

3. The use of background comparisons to decrease the number of COPCs is not appropriate in the screening level ecological risk assessment or the refined screening level ecological risk assessment. As noted on our webpage, the EPA Region 3 BTAG regards comparison with background as a risk management function and not part of the risk assessment process. During the screening ecological risk assessment background data are not to be used to eliminate areas from further risk assessment. Screening is a risk-based process and should not consider background or other policy-laden issues. Chemicals that are clearly not site related, but due to natural or anthropogenic background sources, may be

identified in the uncertainty section of the baseline risk assessment (BERA) and identified for possible elimination as chemicals of concern (COC) during the management process.

4. There are a number of references to resampling of a location, where the resampled data indicated acceptable risk. In these instances, there is one sample that demonstrates risk and one sample that demonstrates no unacceptable risk. The basis for accepting one set of data over the other needs to be clearly explained. The presence of contradictory data does not allow the risk assessor to choose the lesser of the two results and claim that as the final result. The inconsistent data illustrates the variability of chemical concentrations in soil and sediment and the uncertainty concerning whether the data set is adequate to reasonably assess ecological risk. If these data are to be used, then the most conservative data should primarily be used to draw ecological risk conclusions.

5. The use of alternative screening values does not appear to have followed the protocol established by BTAG. This protocol can be found on the USEPA Region III webpage. It should be noted that the use alternative screening values for media for which the BTAG has revised its screening values (i.e., freshwater, freshwater sediment, and marine waters) is not acceptable.

6. When NOAEL, MATC, and LOAEL HQ values are being calculated, the text needs to clearly state which of these HQ values are being used to assess ecological risk. For example, when all three HQs are calculated and the NOAEL and MATC HQs exceed one while the LOAEL HQ is less than one, it is not clear why there is no unacceptable ecological risk.

7. There are a number of references to population effects of the contaminants. It should be clear that the focus of this risk assessment are populations that are on Site 11.

8. The use of safety factors (e.g., for converting from a chronic LOAEL to a chronic NOAEL) needs additional explanations / justification.

9. It should be noted that the characterization of the use of a default BCF/BAF of 1.0 as being adequately conservative is uncertain, particularly when Table 8-7 shows a BAF range of 0.523 to 40.69 for inorganics and 8 of 9 inorganics have a measured BAF that is greater than 1.0.

10. The definition of surface and subsurface soil as being 0-6 inches and 6-24 inches, respectively, is not the same as the definitions given in the referenced guidance. This referenced guidance uses 0-12 inches for surface soil and 12-24 inches for subsurface soil. Any uncertainty associated with this discrepancy needs to be factored into this risk assessment.

11. This document should quantitatively demonstrate that the number of samples is sufficient to allow for a valid frequency of detection determination to be made. Frequency of

detection determinations are generally only meaningful when coupled with spatial distribution considerations.

12. The use of EC_{50} and EC_{20}values to establish toxicity criteria must be adequately discussed. It is must be demonstrated that these criteria are would be adequately protective of ecological receptors.

13. Statements such as that found on page 8-53, Section 8.4.1.2, Subsurface Soil, which conclude that "Since it is likely that the concentrations of the non-detected chemicals are near zero and not present at ecologically important concentrations...." require adequate support, or else the final conclusion ("...none of the non-detected chemicals with maximum reporting limits greater than soil screening values warrant additional evaluation.") is not justifiable.

Specific Comments

14. On page 8-4, Sections 8.2.3, Surface Water, and 8.2.4, Surface and Subsurface Sediment, indicate that only data from the four western-most samples (those closest to Site 11) were included. According to Figure 8-1, there are four additional sample locations further east in Penniman Lake. Justification for excluding these locations from the refined screening level ecological risk calculation must be provided.

15. On page 8-8, Section 8.3.2, Endpoints and Risk Questions, states, "Population and community-level effects are usually difficult to evaluate directly without long-term and extensive study." This section needs to clearly state that the population/community level risk that will be evaluated will be that associated with Site 11 and not to an entire watershed, federal facility, or ecosystem.

16. Section 8.3.5 on page 8-15 states that though available, a direct evaluation of groundwater exposures was not conducted, as an adequate surface water and sediment data set was available from the site and from the downgradient receiving water body (Penniman Lake). Preferential use of these data represents the most realistic estimate of potential current exposures for aquatic receptors. This approach is acceptable for historical releases from groundwater, but is not acceptable to evaluate for future exposure, particularly if contaminated groundwater that has yet to reach the point of discharge is at higher concentrations than that currently being discharged to surface water.

17. On page 8-21, Section 8.3.7.2.1, Screening-Level Risk Calculations for Surface Soils, refers to Table 8-13. Review of this table shows there is no surface soil screening value for chromium. The most appropriate EPA EcoSSLs should be used.

18. In Section 8.4.1.1, the fact that risk estimates / conclusions at each sample location is based on individual chemical constituents and does not consider co-located contaminants introduces uncertainty within the refined screening level risk calculation. In addition,

there are a number of sample locations that are incorrectly used to justify the conclusion of no further evaluation. Both of these issues require further discussion.

19. On page 8-47, Section 8.4.1.1 discusses pesticides. A number of different screening values were identified. Specifically, USEPA Region V: 4,4'-DDT (3.5 µg/kg), dieldrin (2.38 µg/kg), and endrin (10.1 µg/kg); Canadian environmental quality guideline for agriculture/recreational settings: 4,4'-DDT (700 µg/kg); and for commercial and industrial settings (4,4'-DDT (12,000 µg/kg). Based on the habitat found at this site, the highest guideline value is inappropriate. Then, because there is more specific and conservative information from USEPA Region V, these screening values need to be used. This means that for 4,4'-DDT, dieldrin, and endrin, eight, five and two locations exceed their respective screening values and this in turn means that more than one sample location (11SS17) presents risk to higher trophic level receptors. There appears to be a data gap for risk to soil invertebrates and plants, as they are not mentioned. Finally, comment 9 above also applies here.

20. On page 8-49, Section 8.4.1.1 discusses chromium and concludes no further evaluation is needed. This conclusion is not adequately supported, particularly when ones considers that chromium needs to be retained as a COPC at four sample locations: 11-HA04 (92.3 mg/kg), 11-HA02 (35.5 mg/kg), 11SS17 (40 mg/kg), and 11SS16 (57.8 mg/kg).

21. On page 8-60, Section 8.4.1.2 states, "...mercury was not detected in a resampling of this location (sample 11SB01) or in any adjacent samples (located as close as 20 feet from 11-HA04)." The failure to detect mercury in the resampling of 11SB01 is not sufficient evidence to support a recommendation of no further investigation.

22. Page 8-102, Section 8.4.1.9, Penniman Lake Surface Water, indicates that while the HQ for Aroclor-1260 was 5514, "...it is likely that the source of this contamination is located upgradient of Site 11 within the watershed of the north stream." The conclusions and recommendation sections of this report should acknowledge the ecological risk posed and make appropriate recommendations to identify and address the source of this contamination.

23. On page 8-113, Section 8.4.1.10 states "...there is no direct evidence of a complete migration pathway between the site and Penniman Lake." There is uncertainty whether, or not, this is due to the limited number of samples, variability within sediment concentrations, or the possibility that the migration pathway no longer exists.

24. On page 8-119, Section 8.4.1.11, Penniman Lake Subsurface Sediment, indicates the HQ for methyoxychlor was less than one, but then lists the HQ as 84. This HQ value needs to be corrected as needed.

25. On page 8-128, Section 8.4.1.12.1, Site 11 - Terrestrial Food Web Exposures, indicates that lead "...is not considered an ecological risk driver for upper trophic level terrestrial

receptors at Site 11, and no further evaluation is recommended." Because all three HQ values (NOAEL, MATC, and LOAEL) exceeded one and the fact that the population of ecological receptors is limited to those found at the site, lead is a contaminant of concern that needs further evaluation.

26. Section 8.4.2, Uncertainties Associated with Step 3a of the Baseline Risk Assessment, on page 8-135; refers to the uncertainties in Section 3.4.2 and that no additional uncertainties were identified. There are no uncertainties identified in Section 3.4.2. In fact, the table of contents for this document does not identify an uncertainty section other than on page 8-135. This deficiency must be addressed as there are numerous areas of uncertainty associated with the refined screening-level ecological risk assessment (Step 3a).

If you have any questions or comments, or would like to discuss this report further, please contact me at 215-814-2333.

Sincerely,

Greyson Franklin

Greyson Franklin
Remedial Project Manager

cc: Debra Miller, VDEQ

Capito, Bonnie P CIV NAVFAC Lant

From: Cole, Linda L CIV NAVFAC MidAtlantic
Sent: Monday, August 28, 2006 1:18 PM
To: Capito, Bonnie P CIV NAVFAC Lant
Subject: ARF FW: EPA Eco Comments on NWS CAX Site 11

Attachments: EPA Eco Comments_CAX Site 11.pdf

EPA Eco
ıments_CAX Site 11

EPA comments regarding the draft RI for CAX Site 11.

Thanks!

Linda

-----Original Message-----
From: Franklin.Greyson@epamail.epa.gov [mailto:Franklin.Greyson@epamail.epa.gov]
Sent: Monday, August 28, 2006 13:05
To: Cole, Linda L CIV NAVFAC MidAtlantic
Cc: djoiner@mbakercorp.com; Cole, Linda L CIV NAVFAC MidAtlantic; mivester@mbakercorp.com; damiller@deq.virginia.gov; Laura.Cook@CH2M.com
Subject: EPA Eco Comments on NWS CAX Site 11

Please see attached comments.

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(See attached file: EPA Eco Comments_CAX Site 11.pdf)